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Universities:

Their Aims, Duties, and Ideals.

BY

A. R. FORSYTH,

SC.D., LL.D., MATH.D., F.R.S.,

Sadlerian Professor of Pure Mathematics
in the University of Cambridge.

(An Address to the Southport Literary and Philosophical Society, delivered on the 17th of September, 1903.)

PRICE SIXPENCE.

PUBLISHED FOR THE SOCIETY BY

CHAS. WOODALL,

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UNIVERSITIES:

THEIR AIMS, DUTIES, AND IDEALS.

WHEN your Council honoured me with an invitation that I should address the Society on the day after the conclusion of the meeting of the British Association, I did what many men would do in such a case, and tried to find substantial reasons which would enable me to decline, with some show of truth and with as little appearance of ungraciousness as might be possible. But I found that the courteous letter of your Secretary was supported by a letter from your President which gave a personal as well as an official colour to the invitation of the Society. Refusal proved difficult, and acceptance easy; and so the momentarily easy path was chosen. The decision, however, gave to my vague hesitation a definite form; acceptance demanded the selection of a subject, and, in considerate forethought, this selection had been left freely to me.

By the kindness of your Secretary I was enabled to peruse two volumes of the Proceedings of this Literary and Philosophical Society. Your records show that your activity, at least as indicated by your publications, is substantially literary in bent; the Society certainly needs no address seeking to stimulate preferential interest in that section of human thought. I note that, by your title as well as by your foundation, your objects include the promotion of philosophical studies not less than the promotion of literary studies. This range might have given me an opportunity in one direction; unhappily for me, my knowledge of mental and moral philosophy, in the fullest and fairest sense of the term, is too attenuated to permit me even to think of selecting some topic from that domain of thought. But there is a philosophy of nature as well as a philosophy of mind and of morals; and it ought to

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have been quite easy for me to select some topic from the range of what the charter of the Royal Society calls "natural knowledge" as a subject upon which to address you this evening. Reflection, however, appeared to render such a selection rather inconsiderate to you, for the topic would necessarily have been of the type that now is commonly called "scientific." It occurred to me that, by the time the meeting of the British Association had ended, Southport might have had a surfeit of science. During a crowded week her inhabitants have been giving hospitable entertainment to the priests and the acolytes of Science. Presumably they have been worshipping at the alternate shrines of pure science, applied science, practical science, economic science, educational science. There has been no lack of discourses on topics that have ranged from the most abstract and theoretical to the most concrete and practical. And all this activity has been expended in the sacred cause of the advancement of science. You will be indulgent to me if, taking provident account of the week in which your world would almost become science embodied, I turned aside from the choice of a strictly scientific subject. The decision was not lightly made; and, indeed, there was grave temptation to seize the opportunity in order to speak about mathematics—a subject that is of special interest to me. Why not talk about mathematics? It has many of the virtues of the Arts: it is indispensable to many of the Sciences; it exhibits an ideal of exactness to which all the Sciences are bound to aspire; it has the majesty of age and the vigour of youth; it reveals visions of beauty to the eye that can see, and it offers illimitable tracts of truth to the mind that can explore. Yet, yielding to no man in my admiration for the science of my predilection, and being prepared (if need be) to maintain its excellence against all challengers, I am bound to recognise its one and only deficiency. It does not possess the quality which newspapers veil under the phrase "general interest"; and I could not hope that all the members of your Society

possess, in continued freshness, that familiarity with their mathematics which would have made my technical discourse intelligible.

Having thus, for one reason or another, set aside topics to be selected from the more obvious among the regions of human thought that claim your activity, I might have been at a loss for a subject had not circumstances, in other respects unkind to me, proved kind in one respect. On the 15th of July in the present year the King signed, and so gave the ultimate constitutional sanction to, a couple of documents empowering action which, continued and developed through the years that are to come, should exercise a profound influence upon the people of this part of England. These documents are the charter of the modified University of Manchester and the charter of the new University of Liverpool; they mark a stage in the activity of the educational bodies upon which they have been conferred, though, of course, they cannot create fully-equipped Universities. The grant of these charters is but an incident in a significant movement among the English-speaking communities of the world—a movement which aims at the creation of widely increased facilities for education of University type; it is the latest incident, but it will not be the last.

Increasing Number of Universities.

I have called the event an incident in a movement, this last word surely being not too strong to represent the current of facts. Let me cite a few of them. It is but a brief time since the Josiah Mason College at Birmingham received a charter constituting it a University. London University, as a teaching body, is even younger than Birmingham. The Carnegie Trust is extending the influence and the range of the Universities of Scotland. It is known that Leeds and Sheffield are seeking for a charter. Colleges in others of our large cities have taken preliminary steps for embarking on a similar quest. The same tendency has long marked common aspirations in the United States:

you probably all are familiar with the unauthenticated reply of an American in answer to a question as to the number of the Universities in the States, "Sir, we have over 350 at the present moment, and we hope to have 400 before the end of the year." A South African Commission issued, only a few weeks ago, an elaborate report recommending the institution of a teaching University in the Transvaal, having one faculty composed of those branches of science that find their special applications in mining industries. And even in distant Tasmania, where the pecuniary support of the University from public funds has for a time unhappily become a dividing question between political parties, the Labour Party has (as I gather from a recent letter to myself) declared itself in favour of maintaining University education.

This citation of facts, similar to one another in their significance, does not pretend to be exhaustive; but it is sufficient to indicate a tendency which has become obvious in recent times, though there was but little sign of it in the public opinion of thirty years ago. I do not for a moment assert that the recital of all these facts constitutes the whole of the truth, or that the causes behind the facts are generally of a uniform character. Sometimes a dominating cause is some maturing of opinion among the community in general: such a cause I should like to believe to be a main influence in developing the University activities in Lancashire. Sometimes the cause is the enthusiasm or the gratitude or the patriotism of an individual; instances will freely occur to those of you who are familiar with the detailed growth of Colleges and Universities, both at home, and particularly in the United States. Sometimes the cause is to be found in a revision of old courses of University study, or a creation of new courses leading to a modification of the attitude that formerly was adopted by business men. There used to be a time, not so far back, when many of them said that University education made a man either a bookworm or an idler; even now, many of them consider

that the time could be more wisely spent in mastering the details of what is afterwards to be their particular business. Yet in England, which is following the lead of the United States, there is evidence of a growing desire among business men that young men coming "with the hope of reaching the higher posts of management shall come with faculties trained by thorough education and by studies of University rank." Sometimes the determining cause is to be found in a not unselfish desire to secure for this country a larger or a more valuable share in the skilled commerce and the skilled manufactures of the world.

But whatever the causes and the motives may be, there emerges the indubitable fact that the number of Universities tends to be on the increase; the latest illustration of the fact is to be found almost in your very midst. It is this event in the University movement which suggested to me the subject that, by your indulgence, I desire to submit for your consideration to-night. My subject is only one aspect of Universities; I propose to discuss some of their aims, some of their duties, some of their ideals. It is almost superfluous to disclaim any intention to discuss specifically the aims, or the duties, or the ideals, of these youngest among the Universities; my wish rather is to deal with the main characteristics of any University within the limits indicated. There will be no attempt to set out alternative courses of advanced study best suited to develop the various types of intellectual faculty; nor is it my intention to discuss, or even (if I can avoid it) to express any opinion upon, academic controversies such as the position of Latin and Greek in any scheme of University training. I do not propose to regard the University from the standpoint of the student solely, but rather to consider it as an organisation with aims to be attained, with duties to be discharged, and with ideals to be realised, in the body politic of the State. I do not pretend to give you any specially new views, and do not make any claim to cast any specially fresh light on the subject. All that has been

done is to collect and sift my own notions, which are chiefly the result of observation, reading, and reflection, and to set them out in some order. The objects of your Society are "the promotion of Literature, Science, and Art, and the pursuit of these studies" by the various methods in use among learned bodies; these equally are objects of a University. My purpose will have been attained if I can so far secure your consideration as to set your thoughts sympathetically stirring, not to-night alone, about some of the aspects of University education, which promises to wield an increasingly important influence in the life of this country.

Variety of Types of Universities.

One remark of a general kind must be made before proceeding to a synthesis of the purposes of Universities. It is a platitude, yet not unimportant, to the effect that they will not be (and cannot be expected to be) uniform in character. Old Universities have their traditions, sometimes the growth of centuries; and though they have to review their ideals from time to time and to revise their practice to meet the challenges and the demands made by the growing needs of the nation, changes are made only gradually, and the main character tends to persist through the changes. On the other hand, new Universities arise in response to new demands of diverse kinds; and their character is bound to be shaped by their origin, their circumstances, and their growth. In the later Middle Ages, the philosophy of the schoolmen yielded before the onset of the study of the humanities—a study which has largely determined the character of our oldest Universities. The physical sciences, by their growth during the last century, have modified the range of education and have influenced profoundly some of the older Universities, while they have had no small share in dominating the form of newer foundations. The needs of applied sciences and practical sciences in our own day are stirring ideals of education widely removed from those that reposed upon the

humanities; and they are leading to the establishment of learned institutions of types hitherto unknown. Sometimes between one University and another, sometimes within the limits of a single University, there will be what is almost a struggle among the subjects in their historical assignment to courses of study. Fundamental questions are being asked. Should the study of modern languages displace that of the ancient languages? Will applied science diminish the attention paid to pure science? Will practical needs direct the study of applied science? Must the acquisition of so-called useless knowledge be renounced in favour of so-called useful knowledge? Can it still be possible to maintain the process of a liberal education in the presence of the demands for technical instruction and commercial instruction? These and many other questions will arise in practically every University. They must be answered when they arise; and the answers will vary, perhaps from time to time, certainly from body to body. Yet diversity of character, of circumstances, and of practice, will not exclude a certain community of spirit and a certain similarity of obligation.

What is a University?

What is a University? Is it a building, or a set of buildings? Is it a federation of Schools? Is it an aggregation of Faculties? Is it a corporation of individuals, formally devoted to a common purpose? Is it an examining body with power to grant degrees? In each of these senses, and doubtless in several others, the word University has been vaguely used at different times and of different bodies. In its earliest use in regard to the kind of institution under consideration, a University appears to have been a sort of scholastic guild; there were Societies of Masters, as there were Societies of Students; and each of these was called a University. There were two places where these guilds grew into greater importance than elsewhere at the close of the twelfth century: one was Paris, mainly a University of

Masters; the other was Bologna, mainly a University of Students. Indeed, so supremely important were these two Universities, even while they were so distinctively different in character, that most of the older European Universities have conformed to one or other of these types in many (if not in most) essential features. Thus Oxford and Cambridge are modelled on the Master University of Paris; it is the graduates who have the power of electing the acting chief of the University. On the other hand, the ancient Scottish Universities are modelled on the Student University of Bologna; it is the undergraduates who have the power of electing the acting chief of the University. There have been variations in the detailed developments of the different Universities. Most of them had several Faculties: though not all of them had the same Faculties. Thus Salerno, at the zenith of its fame towards the end of the eleventh century, was simply a medical school (having, it may be mentioned, several women among its teachers and writers). Bologna had a Faculty of Law only; Paris had Faculties of Theology and of Arts; Saragossa had one of Arts only. The notion that a University was a school in which all branches of knowledge are represented was one that sprang up later, and had a considerable vogue: this Literary Society will readily recall Dr. Johnson's description of a University as "a school where everything may be learnt." The conception of a University as a centre for the cultivation of universal knowledge and the teaching of universal knowledge undoubtedly propounds a stimulating ideal; and the realisation of the ideal is as nearly imperative in modern times as anything almost impossible can be. At any rate, I know of no instance in which that conception of a University is justified by actual facts; and there is on record one instance in which the conception was completely falsified by actual facts, in that no teaching of any kind of knowledge whatever was done—the old University of London, now modified into a University that not merely examines, but also teaches.

Characteristics.

What, then, should be taken as the working conception of an ideal University? To my mind, it is a corporation of teachers and students, banded together for the pursuit of learning and the increase of knowledge, duly housed, and fitly endowed to meet the demands raised in the achievement of its purposes. In the prosecution of its academic aims, the University should be free from all external censorship of doctrine; it should also be free from all external control over the range, or the modes, or the subjects, of teaching. Above all, thought should be free from fetters of official type: whether political, from the State; or ecclesiastical, from the Churches; or civic, from the community; or pedantic, from the corporate repressive action of the University itself. In its establishment, the amplest powers that wisdom can suggest should be conferred upon it; in working out its intellectual salvation, the exercise of those powers should be vested in select bodies of fit persons, sufficiently small in number to be efficient, yet large enough in number to prevent degeneration into an intellectual clique, changing sufficiently from time to time to prevent the dominance of merely personal policies, and representative enough to be in touch alike with the experience of the past and with aspirations for the future so far as these have taken shape or have acquired definition.

Access to the facilities of the University should be open to all duly-qualified persons, without consideration of sex, without consideration of station in life, without consideration of intellectual beliefs, whether theological, political, or otherwise. The University should have the power of requiring both a minimum of qualification and a variety of qualifications to be satisfied by an applicant before admission to the status of student. Some test of qualification had to be imposed upon mediæval students, for Latin, then still something of a living language, was the one language of learning—and workers in science can sigh that it ever ceased to be so. That some test of qualification still is

desirable probably is obvious to anyone who accepts my view of what University education should be. In my view, the school should prepare for the University; and education in the University should be, not something distinct from the school education, but rather its development, its amplification, and (on some issues) its complement. Briefly stated, the preliminary training should have been finished; and only those whose attainments show that they are qualified to profit by further training should be admitted to the courses of University study.

Qualification of Students.

As this limitation is important, will you be patient with me while I make a digression from my main topic and indicate the kind of minimum of qualification that I, if an autocrat, should exact in order to have one security (necessary, though not sufficient) that the students shall be not unworthy of a seat of learning? Besides the usual elements of reading, writing, and arithmetic (and I would add drawing to them), his studies should have included subjects that would train and develop some power of expression, some power of reasoning, some power of observation. To give him some power of expression, I would use his own language in the first place, initiating him into the mysteries of grammar and analysis through it alone, giving him some acquaintance with selections from the best of its literature, and, above all, practising him regularly in the art of composition in his own language. Then after a certain stage, and in order to give him, while still at school, a more accurate literary training, he should be drilled in at least one foreign language, so as to be able to read it with ease and accuracy; the contrast of the two languages in idiom, diction, method, and manner, should emphasise his critical appreciation of his own, and increase therefore his control over it. If he can spare time for only one foreign language, my choice would be a modern language; if he can spare time for two foreign languages, let Latin be one of them; if he can spare time for more, he is in the way of being a scholar,

and he needs none of my presumptuous directions on this head. To give him some power of reasoning, I would use the elements of mathematics; his algebra should be built upon his arithmetic, without the fatuous artificialities that disfigure text-books and examinations, though happily in a lessening degree; above all, he should have a training in geometry, beginning with experimental work so as to familiarise him with the matter, and gradually introducing the processes of geometrical reasoning; and if he can be taught the elements of mechanics, beginning also with an experimental basis, so much the better. To give him some power of observation, I would use some of the experimental sciences; my own choice would be the rudiments of experimental physics or inorganic chemistry. But more than all these are wanted; all the studies thus far prescribed are for the purpose of sharpening his wits, and, in the process, they will develop his intelligence. The latter must be developed also in other ways; and to my mind one of the best of ways is to give him a general knowledge of the history of his country, a general knowledge of the geography of the world, and (if possible) some rudimentary knowledge of the modern history of neighbouring countries.

Such a programme provides the elements of a liberal education. A youth, so educated, is ready for the technical training now needed for so many of the occupations of life; and even if he does not devote more time to the continuance of his studies, he is provided with the elements of such intellectual interests as should make him an intelligent man and an intelligent citizen. Also, such a programme is practicable for the average boy: no exceptional ability is needed to have completed such a course at the age of fifteen or sixteen. I am not prepared to say that the average boy at any school in England will have achieved this programme before he is sixteen; if I may judge from some not entirely laudatory criticisms that are openly expressed from time to time and remain unrebutted, it

seems to be the fact that the average boy at a public school does not achieve such a programme or its equivalent before he is sixteen. But I am optimistic enough to believe that, in the future as in the past, improvements can come even in English education; and meanwhile I am content to claim that the programme of training which has been sketched is not merely possible, but is practicable also, within the time allowed.

Groups of Students.

Let us assume therefore that we have an ample supply of average students who have undergone some not inadequate preliminary training; and, as hopeful assumptions are encouraging, let us further assume that there is more than a sprinkling of students with abilities well above the average. In coming to our ideal University which is eager to receive them, the students are actuated by varied kinds of needs and desires. Some—many of them, I should like to think—mean to devote themselves to one or other of the different forms of practical business, not intending to use their University education professionally, but preparing to take their part in maintaining and elevating the tone of the community. All the professions and callings, whether learned or technical, are to be recruited from among the students when once they have been trained. Some have the intellectual ambition, more or less defined as yet, ultimately to devote themselves to a life of learning in their own University by preference, yet, if not there, then in some other. There are men intent upon the ministry of religion; there are men intent upon the public service of the State. Last in this enumeration, there are the men of genius, as yet unproclaimed, who are to find in the University that training which will gradually reveal to them their powers, and that stimulus which will inspire them to the highest service of mankind as the discoverers and the thinkers of their generation. To all these men the Univer-

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sity must give the means and the opportunities of obtaining the knowledge adapted to their several intellectual needs.

Spirit of University Training.

Of course, every person would be prepared to acknowledge that a University education includes more than ever the most industrious and praiseworthy absorption of knowledge; and much of the influence of a University depends upon the spirit and the circumstances in which knowledge is given and received. There is an education of character as well as of mind; and the two can be achieved simultaneously by the due conduct of studies. Thoroughness must be the dominating quality in every study; difficulties which arise must be solved, not evaded; proofs must be sternly examined and only accepted if found valid and clearly comprehended; truth, and not merely comfortable or convenient doctrine, must be the object of search; and all must be done in a spirit that would scorn dishonesty or shuffling about the affairs of the mind as contemptuously as one scorns dishonesty or shuffling about the property of one's neighbour.

Nor is it less important that the imagination should be stimulated. Some stimulus will come from every study, honestly and thoroughly pursued; according as it is greater or less, so is the greater or the smaller advantage to the student—not then alone, but throughout his life, as affecting his power, his influence, his usefulness. Above all, it is important to have what may be called the play of intellect between the teachers and the students, and, more particularly, in all liberty among the students themselves; it makes for force of character, for steadiness of character, for command over powers, for fairness, for soundness of judgment, for proper confidence in one's self, for proper consideration for others, for toleration, for knowledge of men, and for the seriousness of life. This phase of education is more important than mere instruction; and a University in which it is not secured provides but a maimed

and stunted education. It stirs, it moves, it creates, the sentiment felt to the University; its operation has something of the air of spiritual romance, something also of elusive mystery. It cannot be secured by regulations or endowments; it is a product of the spirit of the place and the spirit of the time, difficult to establish as a custom, a treasure beyond value when once established as a tradition.

Each University in its own manner must evolve its own method of establishing this influence; the utmost that its formal regulations can achieve is the due provision for the intellectual needs of all classes of students.

Range of Instruction.

To discharge this duty, fraught with issues so grave to the good of the community, one necessity for the ideal University is that her courses of possible instruction should cover the whole field of human thought and intellectual activity, so that she can take her part in the diffusion and the extension of knowledge. She should possess such a collection of teachers that a student could obtain instruction in any department of knowledge, and could be trained in the use of any method by which knowledge is obtained. All sources of knowledge must be open to all students as they want them; all aids to learning must be provided. She must foster the liberal studies where "nothing accrues of consequence beyond the using"; she must foster the useful studies where the revenue to be produced is of essential consequence. In every art, in every science, in any study which is neither an art nor a science, the spirit of inquiry should be encouraged; and the only dogma permitted to the teacher should be his guiding advice based upon knowledge and experience.

To those who are acquainted with the working of actual Universities, my claims may be deemed excessive. But it is to be remembered that I am dealing with an ideal University; and there is no doubt that, in this form of human activity as (I imagine) in all other forms, working

practice will be derived from the too lofty ideal by the omission of some of its constituents. Moreover, the omissions may reflect the wishes, the preferences, even the prejudices, of the founders and the supporters; they may also be some index of the neediness of the University in actual work. Whatever their cause, they will tend to vary from one centre to another; and thus each working University will acquire its individual character, and monotony of character will be avoided.

Making this passing concession to the limitations that inevitably cramp the initial stages of great undertakings and sometimes shallow their whole course, let me return to my ideal University where all departments of knowledge are represented, and attempt some classification of these departments so as to give greater clearness and precision to some of its activities. They are set out in the order in which they arose naturally to me when considering them —no other significance, either of preference or importance, is implied in the order.

Position of Theological Studies.

As a preliminary let me deal with a matter which must be settled in the case of each University specifically and particularly—the attitude towards theology. The older among our foundations include its study within the curriculum; the tendency of most of our new foundations is to exclude its study. My ideal University is to make provision for every department of knowledge, and, as theology is undoubtedly a branch of knowledge, she must make provision for the teaching of theology. But in my University, thought is to be free from all fetters of official type, including those imposed by the Churches, and the spirit of inquiry is everywhere to be encouraged. These conditions exclude all that part of theology which is expounded definitely on the basis of dogma; and, so far as I see, admit all else. Thus dogmatics, apologetics, pastoral theology,

would be excluded; exegesis, ecclesiastical history, the characteristics and distribution of religions, and the history of religion, would be included. Provision would have to be made for the teaching of these latter subjects; and it is more than probable that each of the teachers would have some definite dogmatic position. But of the intrusion of dogmatic views into the exposition of the retained subjects I am no more afraid than I should be of the intrusion of party politics into the academic exposition of history or (what is to be stirred into passionate interest in England in the very near future) into the academic exposition of economics. Nor to my mind is there any arbitrary quality in the action which would include a portion of theology and leave the rest to be obtained, presumably in some theological school of the appropriate dogmatic hue. My ideal University is to include the whole field of human knowledge; but it is not to include everything based on human belief or beliefs, any more than it is to include everything based on human activity; and I do not require it to make provision for the whole training of a dogmatic theologian any more than to make provision for the whole training of (say) a surgeon or an engineer.

Branches of Knowledge, Subjective to Man.

Having now expounded this opinion as frankly as is consistent with the brevity imposed upon me by circumstances, I pass to a review of other activities of the University which usually do not give rise to contentious difficulties. As a beginning must be made somewhere, let us begin with man. We may regard him as engaged in the conduct of his own existence, possessed of mental faculties, directed by certain tastes, exercising mental activities, standing (either as an individual or as one of a group) in multifarious relations with other men; he is placed amid a universe; and there are the phenomena of that universe, living or inert, outside him. Each of these qualities, if they may be so styled, gives rise to a branch or to several branches of knowledge.

Our first quality of man as an existing being has regard to his conceptions of the general nature of knowledge and existence as such, and to the theory of his conduct of his own existence; the branches of knowledge related to those conceptions and that conduct are most simply described by the titles of metaphysics and of moral philosophy or ethics.

His next quality pictured him as possessed of mental faculties. The range of these faculties, their detailed activities, their modes and methods of working, to mention only some of their features, give rise to the branches of knowledge described by the titles of psychology and logic. In theory, there are close relations between logic and mathematics; in practice, particularly the older practice, mathematics as a subject has usually been derived from the study of nature.

Man then was indicated as directed by certain tastes; in this indication, it is mainly his æsthetic faculty that is contemplated. The branches of knowledge associated with the æsthetic element in man are conveniently summarised in the title of the fine arts, meaning thereby the arts of music, architecture, sculpture, and painting, alike in their industrial and their intellectual aspects.

When we contemplate the quality of man as connected with the exercise of his mental activities, not in the mode of the exercise but in its results, we are practically face to face with the intellectual creations of all individuals in the aggregate. The section of knowledge which thus arises is so vast that there is difficulty in finding a single title to describe it. Taking account of such limitations upon the range of this knowledge as are implied in the other activities of man which have been explicitly recited, I shall perhaps most simply describe it as Literature.

When we contemplate the quality of man as standing in relations with other men, either as an individual with other

individuals, or as a member of a community with other communities, or as a citizen of a state with other states, the branches of knowledge arising through these relations are languages, law, economics, and history.

Thus far, every branch of knowledge indicated has arisen through the consideration of qualities directly appertaining to the individual man, either to himself alone or in association with others. But his circumstances have to be considered. He is placed in a universe; and before there can be any real approximation to a fit understanding of man and his surroundings, the phenomena of the universe must be studied in their facts, their laws, their orders, their significance, their influence. These studies are vast and varied; they are concerned with all the knowable relations of nature, alike animate and inanimate; and they give rise to that immense and ever-increasing ordered body of knowledge, usually called Science in general. It includes all the particular sciences; and these may be ranged broadly in the three classes of mathematical sciences, physical sciences, and biological sciences, the first two of which have closer relations with one another than (as yet) either with the third.

Ramification of Studies.

Provision has to be made for the adequate teaching of all these branches of knowledge; and it will be seen that my ideal University is growing at an alarmingly rapid rate. Yet the growth will have to be much greater, in respect even to these branches of knowledge, than the statement can outline, exacting as it seems. Branches of study have been indicated as originating mainly in some one source or other; but any study, once definitely introduced into an ordered scheme of knowledge, may develop into issues vastly wider than its initial purpose. Examples occur at every turn. Languages arose in my enumeration through the relations between man and man; presumably, therefore, they arose for their use in oral communication. But

they can be studied for other than utilitarian purposes. They may be studied organically, that is, for their accidence, their syntax, the sources of their words, the analogies and the differences in their methods, their growth and their mutations, their influence upon one another: these, and similar aspects of languages, constitute the science of philology; and provision will have to be made for its teaching. Further, I would make the mild remark that languages, ancient and modern, are the vehicle of literature in the widest meaning that can be given to the word; and a mode of teaching them, which is neither utilitarian (in my sense) nor philological, will be required for appreciation of the best treasures of thought, for comprehension of the records of development of nations, for intelligent understanding of the civilisations of the world.

As for languages, so for history, another of the subjects that in my enumeration arose through the relations between man and man. It may begin in our scheme as the record of the doings of particular peoples; it must develop into the history of mankind to which that of particular peoples is ancillary. The history made up of acts is not more important, rather it is less important, than the history of movements and the development of political thought. Account also must be taken of the fine arts, moral philosophy, religious thought, scientific thought, in that continuous succession which also is their history. For all these, and for the corresponding amplifications of other branches of knowledge introduced initially in the simplest of elementary demands, provision must be made in the University.

Other Branches of Knowledge.

When all this is recognised, and when all the demands thus made are acknowledged and met, then it might be imagined that the necessary provision of the University is complete and that she is fully equipped to discharge all

her duties. Far from this being her happy reality, she must afford opportunities for another group of classes of knowledge of an entirely different kind. In the gradual elaboration of the scheme, many useful branches of knowledge have been established: yet in their inception they have been established rather as pure knowledge, and they do not attain their full significance until they have been so organised that the amplest utilitarian tax has been levied on their riches. There thus must be (to use the ancient word) a faculty of theology, a faculty of law, a faculty of medicine and surgery; though just as not all theology can be taught in the one faculty, for dogmatics have been excluded, so neither all the practice of law nor all the clinical elements of medicine and surgery can be taught in their respective faculties in the University.

Nor is this all. These practical organisations have been selected as being subjective to man: but they are not complete even within that categorical limit. Growing academic thought has discovered that other organisations of knowledge can fitly be framed; Birmingham now possesses a department of commerce, Cambridge has just established a new curriculum in economics, and not in one University alone has provision been made to meet a growing sense of the need for a department in the history, the theory, and the art, of education itself.

The tale of demands is not yet full. Only those branches of useful knowledge have thus far in the scheme been selected for utilitarian organisation which are most closely associated with man's health and man's human relations. There still remain those other branches of useful knowledge which, fitly organised and selected, will train men to wield the forces of nature for the advantage of the community. Perhaps the most conspicuous example of such a group of branches of knowledge is provided by the school of engineering which certainly must exist in our ideal University, to include instruction in electrical engineering, in mechanical engineer-

ing, and in naval engineering; and other examples, following the wisdom of recent establishments, will be given by a school of agriculture, a school of tropical diseases, and departments of particular industries depending largely upon the locality of the University. It lies with the future gradually to work out the balance between practice and training, and to settle the proportion between experiment and experience, in the equipment for professions of the newer order as has been done for the professions of medicine and surgery. And let me add two warnings. While the earlier stages in any such process continue, there is more than a probability that old ideas as to what constitutes a University education will receive rather rude shocks, and may occasionally be staggered. I would, very respectfully, urge a caution against the exclusion of any subject of new technical knowledge from the University, either actual or ideal, if only because no man can foretell its possible tribute to even abstract theories; I would suggest that its prudent reception in a not too unsympathetic spirit is a preferable mode of exercising the caution of academic wisdom. On the other side, the fiery and occasionally arrogant advocates of devotion to the newest learning would do well to temper their vehemence with intellectual charity. Before they came upon the scene, thought had propounded problems which their sciences cannot touch; after they shall have left it, thought will continue to propound problems equally unamenable to their sciences.

Extension of Knowledge: Research.

Hitherto, I have spoken of the University as a treasury of all ascertained knowledge which is to be given without stint to all qualified students coming for its wealth; and those who distribute this wealth are the professors and other teachers. But that duty, no matter how excellently discharged, is not the sole duty of these officers in respect of knowledge; if it were, the University would only be a rather

glorified secondary school. It is true that we have not supposed our ranges of study to be confined to antique knowledge which is crystallized: on the contrary, all knowledge is to find its home in our University and, at the fitting stage, the students will be brought into contact with living knowledge, growing, increasing, and in its very vitality proving the greatest stimulus to the ardent mind. You would not be content that the estimates of literature should only be those of some bygone generation. The last word in judgment of painters and painting had not been uttered when Ruskin finished his great book. Almost from day to day, a chapter in the history of civilisation anterior to the Greeks is being opened up by the discoveries in Crete. Not all the problems of history are solved; and their solution will add to the knowledge of the past, perhaps to the comprehension of the present. After the past week, you will not need to be told in detail how, in every direction, the sciences, abstract, concrete, practical, are advancing by leaps and bounds. Progress is the condition, it is the essence, of living knowledge; it should be the very breath of life of the University.

How is this progress to be secured, and the knowledge of it made available? It is manifestly the duty of the professors to assimilate new facts as they come, and to submit them to those critical refining and concentrating processes which make the surviving product some contribution to truth. But is there to be nothing else on the part of the professors? Is it to be "all take and no give"?; all absorption and no production? Are they to profit by taking toll of all the thought of the world, and to contribute nothing for toll in return? I hold it to be the highest duty of a teaching professor that, up to the limits of his powers, he should strive to contribute to the increase of knowledge and the advancement of truth.

Now I know that all professional spirit is not the same spirit. There is a spirit which devotes itself to administra-

tion; its works deserve grateful acknowledgement, and they are undoubtedly indued with the exercise of power, so dear to many souls. There is a spirit which devotes itself to the humanising and social influences that should be a feature in the life of a University; its labours are blest in a quickened vitality that affects the whole community. But the spirit of research must also be there; not alone the quest of facts, but the quest of truth, which is higher than facts; not alone the love of novel thought, but the love of wisdom, which is the crown of thought. You cannot secure it by regulations; a professor will devote himself to research in proportion as he likes it, not because it is an expected duty. You cannot exact it from every professor; but there must be a substantial amount of research produced by the aggregate of professors, or their corporation will fail to contribute its share to the advancement of learning. Moreover, in the absence of research, the University will fail in other respects; for it will be unable to exercise the profoundest of all influences upon the most earnest of its students whose later duty it will be to carry on the torch of learning—I mean the influence of stimulus and inspiration.

Will you let me be reminiscent for a few moments? When I was an undergraduate at Cambridge, studying mathematics in all the earnest and kindly rivalry that is frankly and easily possible among young men who are friends, there was, among the professors, a group of four men of supreme eminence, Stokes, Cayley, Adams, and Maxwell. We were not (or we thought we were not) sufficiently qualified by our attainments to attend their lectures in our earliest days; but our teachers could tell us of their powers, their genius, something of what they had done or were doing; and we knew that they stood among the great men of the world. Do you think it was a little thing to young men at the opening of life that they belonged to a University which possessed such illustrious pioneers of learning? I can tell you that, though the

young men then knew themselves hardly worthy of entrance even into the court of the Gentiles in the temple of new knowledge, the mere presence of the great men stimulated them and inspired them along the paths which led to the temple. I have spoken of one group of professors, great men in the domain of knowledge that was our special pursuit; I would mention another group of professors possessed by Cambridge at that time, equally great in another domain, that of theology. They were Lightfoot, Westcott, Hort. To theological students I suppose that they stood for as much as did the mathematical group to us; but even to those of us who were not theological students their achievements made the University a more stimulating home of study, though we knew nothing in detail of their work. All these men are dead, the oldest of them all only a few months ago; their bodies are buried in peace; but their names live for evermore, a treasured inheritance and the proud possession of the University of which during their lives they were an ornament, a glory, and an inspiration.

This deviation into personal reminiscence is undoubtedly an interruption of my main line of argument. Yet these particular examples of fact may do more than any ordered sequence of reasons could do for the establishment of my contention that a healthy University must contribute not merely to the diffusion of knowledge, but also to the advancement of learning.

Concluding Remarks.

I have spoken at length of some of the aspects of Universities, and have incidentally alluded to others; and some have been omitted entirely. It is time, however, that my remarks should draw to a close; and so I leave the subject with you at this stage. Earlier in the evening I confessed that the receipt of the charters of the Universities of Manchester and of Liverpool suggested my subject. But the real reason for its selection was a desire on my part to

do something by way of concentrating your thoughts, and, through you, the thoughts of others, upon the significance of University education; for I believe that a vigorous University can exercise a most beneficent influence upon the life of a nation. It certainly can play its part in so training men that they can contribute to the commercial success and the material welfare of the people among whom it is placed. But it can do more. The greatness of a people is not to be measured solely or even mainly by its commercial success, or the extent of its empire, or the vigour of its fighting powers. Thought has its part in life, no less than action: frequently it dominates action: often it is more potent than action in its influence upon the course of civilisation. In estimating the position of a nation in the scale of the world, not a little weight ultimately is attached to its devotion to learning. The spread of learning makes for the clearer understanding of the nations by one another, and consequently assists towards developing feelings of comity and invoking the spirit of peace. Universities can do much as agents in the achievement of these aims as of others that are more utilitarian. They give to their people a wider range of knowledge and a higher standard of culture; and they can organise the genius and the ability of a nation so as to feed the living springs of action and enable it to make no unworthy contribution to the growing thought of the world.

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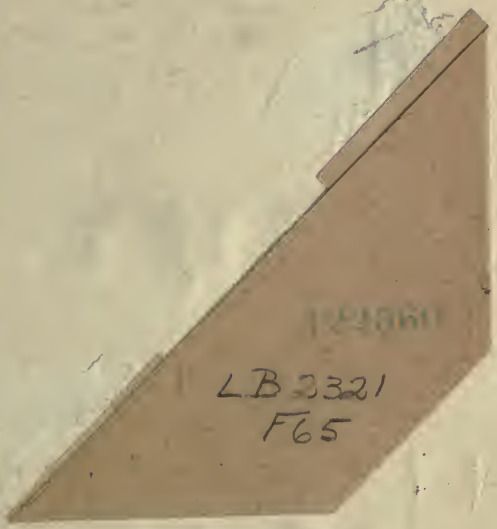
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